

Application No. 10/050,346

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

- 1 1. (previously presented) A method of classifying media comprising:  
2 generating a probabilistic input-output system having at least  
3 two input parameters and having an output which has a joint dependency on  
4 said input parameters, said input parameters being associated with image-  
5 related measurements acquired from imaging textural features which are  
6 characteristic of different classes of media, said output being an identification  
7 of a media class;  
8 imaging a medium of interest to acquire image information  
9 regarding textural features of said medium of interest, said textural features  
10 being related to structure of said medium of interest;  
11 determining said image-related measurements from said image  
12 information; and  
13 employing said probabilistic input-output system to associate  
14 said medium of interest with a selected said media class, including using said  
15 image-related measurements determined from said image information as said  
16 input parameters.
- 1 2. (original) The method of claim 1 wherein generating said probabilistic  
2 input-output system includes relating texture-dependent vectors ( $x$ ) to media-  
3 identification outputs ( $y$ ), said input parameters being parameters of said  
4 texture-dependent vectors.
- 1 3. (original) The method of claim 2 wherein generating said probabilistic  
2 input-output system includes using mean values ( $\mu$ ) of the reflectivities of said  
3 medium classes and standard deviations ( $\sigma$ ) of said reflectivities as said input  
4 parameters.

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1 4. (previously presented) The method of claim 1 further comprising setting  
2 print parameters for applying print material on said medium of interest,  
3 including basing settings of said print parameters on said output of said  
4 probabilistic input-output system.

1 5. (previously presented) The method of claim 1 wherein generating said  
2 probabilistic input-output system includes:  
3 imaging a plurality of samples of each of said media classes;  
4 calculating said image-related measurements for each of said  
5 samples that are imaged;  
6 on a basis of said input parameters that are associated with  
7 said image-related measurements, mapping each said sample in a multi-  
8 dimensional data distribution to form a cluster-weighted model (CWM) in  
9 which joint probability densities established by said mapping are used to  
10 define probability clusters within said data distribution; and  
11 associating said probability clusters with said media classes.

1 6. (currently amended) The method of claim 5 wherein said associating said  
2 probability clusters includes forming a look-up table which correlates said  
3 probability clusters with said media classes, said media classes including at  
4 least one type of paper.

1 7. (previously presented) The method of claim 1 wherein said imaging  
2 includes projecting light onto said medium of interest at an angle of less than  
3 45 degrees relative to an imaged surface of said medium of interest.

1 8. (previously presented) The method of claim 7 wherein said imaging further  
2 includes detecting surface features having dimensions of 100  $\mu\text{m}$  or less.

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- 1 9. (previously presented) The method of claim 1 wherein said imaging  
2 includes projecting light onto said medium of interest at an angle greater than  
3 45 degrees relative to an imaged surface of said medium of interest, said  
4 image-related measurements being specular measurements.

10-20. (withdrawn)

- 1 21. (currently amended) A method of performing media classification with  
2 respect to a plurality of different media classes, the method comprising:  
3 acquiring statistics about surface textural features that are  
4 inherent to [[for]] the different media classes; and  
5 generating a probabilistic input-output system having at least  
6 two input parameters and having an output which has a joint dependency on  
7 said input parameters, said input parameters being associated with the  
8 statistics, said output being an identification of a media class.

- 1 22. (currently amended) A method of classifying a medium of interest with  
2 respect to a plurality of different media classes, the medium having surface  
3 textural features that are inherent to the medium, the method comprising:  
4 acquiring image information about the surface textural features  
5 inherent to [[of]] said medium;  
6 generating statistics about the surface textural features from the  
7 acquired information; and  
8 using a probabilistic input-output model to discriminate the  
9 medium against the media classes, including using the statistics as input  
10 parameters to the model.

- 1 23. (previously presented) A system for performing the method of claim 22.

- 1 24. (previously presented) A printer for performing the method of claim 22.